

HOLLOW FAN BLADE FOR GAS TURBINE ENGINE

ABSTRACT OF THE DISCLOSURE

Hollow fan blades for turbo fan gas turbine engines are formed of two separate detail halves. Each detail half has a plurality of cavities and ribs machined out to reduce weight. These detail halves are subsequently bonded and given an airfoil shape in the forming operation. In the present invention, the ribs are oriented biased to provide stiffness as needed in different sections of the fan blade with smooth transitions between regions. The ribs and cavities do not run solely radially or chordwise, but curve and change direction. The path of each cavity is curved sufficiently to eliminate any regions with long, straight cavities, which would have low inertia in cross sections through the cavity parallel to the rib. Preferably, cavities do not continue straight in any direction for lengths greater than half the blade chord (e.g. leading edge to trailing edge) before curvature causes the rib to intersect cross section.